

## CLAIMS

What is claimed is:

1. A method of communication in a network access system including an external processor and a programmable access device, said method comprising:

transmitting a control message from the external processor to the programmable access device to establish a configuration of the programmable access device; and

communicating messages from the programmable access device to the external processor for service processing in accordance with the configuration.

2. The method of Claim 1, wherein:

transmitting a control message comprises transmitting a filter control message to establish a configuration of a packet header filter in the programmable access device; and

communicating messages comprises communicating network messages filtered from a packet flow by the packet header filter of the programmable access device .

3. The method of Claim 2, and further comprising limiting communication of network messages from the programmable access device to the external processor by sending the programmable access device a message setting message interface flags in the programmable access device.

1 4. The method of Claim 1, wherein:

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3 transmitting a control message comprises transmitting a monitor control  
4 message to establish a configuration of a monitor in the programmable access device;  
5 and

6  
7 communicating messages comprises communicating reporting messages from  
8 the programmable access device to the external processor in response to the  
9 configuration of the monitor.

1 5. The method of Claim 4, wherein transmitting a monitor control message  
2 comprises transmitting a control message to establish a threshold number of allowed  
3 retransmissions.

1 6. The method of Claim 1, wherein transmitting a monitor control message  
2 comprises transmitting a threshold activity level.

1 7. The method of Claim 1, wherein transmitting a control message comprises  
2 transmitting a policer control message to establish a configuration of a policer in the  
3 programmable access device.

1 8. The method of Claim 1, wherein transmitting a control message comprises  
2 transmitting a forwarding table control message to establish a configuration of a  
3 forwarding table in the programmable access device.

1 9. The method of Claim 8, wherein establishing a configuration of a forwarding  
2 table comprises establishing a new forwarding table in the programmable access  
3 device.

1 10. The method of Claim 1, wherein transmitting a control message comprises  
2 transmitting a control message to establish a configuration of a scheduler and one or  
3 more associated output buffers in the programmable access device.

1 11. The method of Claim 1, wherein transmitting a control message comprises  
2 transmitting a shaper control message to establish a configuration of a shaper in the  
3 programmable access device.

1 12. The method of Claim 1, wherein:  
2  
3 transmitting a control message from the external processor to the  
4 programmable access device to establish a configuration of the programmable access  
5 device comprises transmitting a control message specifying a source from which  
6 packets are not to be accepted; and  
7  
8 the method further comprises dropping packets from the specified source by  
9 the programmable access device.

1 13. The method of Claim 1, and further comprising in response to service  
2 processing by the external processor, injecting a packet from the external processor

into packet flow through the programmable access device.

14. The method of Claim 1, wherein

transmitting a control message from the external processor to the programmable access device to establish a configuration of the programmable access device comprises transmitting a session deletion control message; and

the method further comprises the programmable access device deleting a session specified by the session deletion control message.

15. The method of Claim 1, and further comprising the external processor signaling network hardware to establish a network connection in response to receipt of a message from the programmable access device.

16. The method of Claim 1, and further comprising exchanging keepalive messages between the external processor and the programmable access device.

17. The method of Claim 1, wherein transmitting a control message comprises accessing a control processor on the external processor via an application programming interface.

18. The method of Claim 1, and further comprising in response to said control message, sending an acknowledgement from said programmable access device to said external processor.



9 network messages filtered from a packet flow by the packet header filter of the  
10 programmable access device .

1 23. The network access system of Claim 22, said external processor comprising  
2 means for limiting communication of network messages from the programmable  
3 access device to the external processor by sending the programmable access device a  
4 message setting message interface flags in the programmable access device.

1 24. The network access system of Claim 21, wherein:

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3 the programmable access device comprises a monitor for network traffic;

4  
5 the control message comprises a monitor control message that specifies a  
6 configuration of the monitor; and

7  
8 the messages communicated by the programmable access device comprise  
9 reporting messages in accordance with the configuration.

1 25. The network access system of Claim 24, wherein the control message  
2 specifies a threshold number of allowed retransmissions.

1 26. The network access system of Claim 24, wherein the monitor control message  
2 specifies a threshold activity level.

1 27. The network access system of Claim 21, wherein:

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3 the programmable access device comprises a policer; and  
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5 the control message comprises a policer control message that specifies a  
6 configuration of the policer.

1 28. The network access system of Claim 21, wherein the control message  
2 comprises a forwarding table control message that specifies a configuration for a  
3 forwarding table.

1 29. The network access system of Claim 21, wherein:  
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3 the programmable access device comprises one or more output buffers for  
4 outgoing packets and an associated scheduler; and  
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6 the control message specifies a configuration of the scheduler and the one or  
7 more output buffers.

1 30. The network access system of Claim 21, wherein:  
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3 the programmable access device comprises a shaper; and  
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5 the control message comprises a shaper control that specifies a configuration  
6 of the shaper.

1 31. The network access system of Claim 21, wherein:

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1. The first step is to identify the problem or goal. This involves understanding the current situation and what needs to be achieved.

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